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Electrochemical amination. Functionalization of anisole in solutions of 4.0-6.0 M H 2SO 4 and acetic acid

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Abstract

The electrochemical amination of anisole in 4.0-6.0 M H 2SO 4 solutions containing CH 3COOH and small amounts of water is studied with the use of the Ti(IV)/Ti(III)-NH 2OH system. Under these conditions, the products of radical substitution are para- and ortho-anisidines. Their total current efficiency and yield by hydroxylamine are 82.0% at a complete conversion of the source of amine radicals. Owing to the chain mechanism, the electrochemical process is terminated upon consumption of no more than 0.5 electrons per NH 2OH molecule. At a small charge passed through the electrolyte, the anisidines current efficiency can exceed 380%. © 2011 Pleiades Publishing, Ltd.

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Keywords

amino radical cation, cathode, hydroxylamine, radical cation aromatic substitution, Ti(IV)/Ti(III) mediator system